

Claims

1. A composite material having a support which is at least partially covered by a hydrophobic polymer comprising fluorine moieties obtainable by a process comprising the steps of
 - contacting the support with a crosslinkable compound having at least one olefinic double bond until the support at its surface is at least partially covered with the crosslinkable compound having at least one olefinic double bond,
 - followed by fluorination of the support at least partially covered with the crosslinkable compound having at least one olefinic double bond,
 - removal of unreacted material, if any, and recovering the composite material having a support which is at least partially covered by a hydrophobic polymer comprising fluorine moieties.
2. The material according to claim 1 wherein the support is a porous inorganic material selected from the group comprising inorganic metal oxides, such as oxides of alumina, titanium, zirconium, silicon oxides, and/or iron oxides.
3. The material according to claim 1, wherein the crosslinkable compound having at least one olefinic double bond is an oligomer of a substituted or unsubstituted olefinic diene, such as C₄ through C₁₀ olefinic diene, in particular butadiene, isoprene, chloroprene and/or piperilene.

4. The material according to claim 3 wherein the averaged molecular weight of the oligomer is in the range of from 2 Da to 300 Da.
5. The material according to claim 1, wherein the fluorination is performed with XeF_2 and/or a mixture of fluorine and nitrogen.
6. A method for separation of molecules at hydrophobic surfaces comprising the use of composite materials having a support which is at least partially covered by a hydrophobic polymer comprising fluorine moieties according to claim 1.
7. The method of claim 6 wherein the molecules to be separated are biomolecules such as nucleic acids from the DNA/RNA type, proteins, polysaccharides; low molecular weight substances such as inorganic or organic molecules, in particular antibiotics, detergents, salts.
8. A chromatographic column or cartridge at least partially filled with composite material according to claim 1.
9. A membrane-like item comprising the composite material of claim 1 wherein the composite material is embedded in a polymeric matrix, such as a nylon membrane.
10. An item comprising composite material according to claim 1 in loose form or chromatographic columns or cartridges according to claim 8 or a membrane-like item according to claim 9, optionally in combination with filter materials, reagents and/or buffers or other

devices or chemicals for performing sample preparations or chromatographic separations.

11. Use of a composite material having a support which is at least partially covered by a hydrophobic polymer comprising fluorine moieties according to claim 1 in any chromatographic operation for separation, isolation, identification, purification and/or detection of biomolecules, in particular nucleic acids, in preparative or analytical scale.